

Wisconsin, using techniques described elsewhere (Enderson and Berger, *op. cit.*). Total pesticide residues in the four samples were 130, 717, 754, and 2435 ppm (fat basis) with a mean of 1009 ppm. The lowest value is less than half the lowest found in adult female fat from nine Peregrines in the Mackenzie River in 1966 (Enderson and Berger, *op. cit.*) and the highest, greater than any reported for this species, is four times greater than the top level in the Mackenzie samples. However, our lowest sample is similar to the lowest of four from Yukon River females in 1966 (Cade *et al.* unpublished data) and the highest, from a bird caring for three small young, is about 60 per cent greater than Cade's highest.—JAMES H. ENDERSON, *Department of Biology, Colorado College, Colorado Springs, Colorado 80903*, DAVID G. ROSENEAU, AND L. G. SWARTZ, *College of Biological Sciences and Renewable Resources, University of Alaska, College, Alaska 99735*.

A hybrid Eastern Bluebird × Mountain Bluebird.—On 28 June 1967 Robert W. Nero, W. Harvey Beck, and I collected a hybrid between the Eastern Bluebird (*Sialia sialis*) and the Mountain Bluebird (*S. currucoides*) at a nest box in southwestern Manitoba about 40 miles west of Brandon. Determination was made by Dr. Nero, and the specimen was deposited in the Manitoba Museum of Man and Nature in Winnipeg. The hybrid, a male, has red feathers, blue feathers, and blue feathers with red tips on both throat and breast, and is midway in general size between the Eastern and Mountain bluebird. Its measurements are as follows: culmen 11.8, tarsus 20.5, wing (chord) 104.3, tail 66.5 mm.

The hybrid's song, both in volume and clarity, was much more like that of *S. sialis*. The mountain species utters a softer, more slurry refrain. Sonograms prepared by R. M. Evans show that in pitch the hybrid's song was closer to that of *S. currucoides*. Averages of frequencies (cycles per second) were: hybrid 1,612, *S. currucoides* 1,643, *S. sialis* 1,952. Ridgway (Auk, 3: 282, 1886) notes two similarly colored specimens, one collected in Michigan, the other in Massachusetts. A. P. Gray (Bird hybrids/A check-list with bibliography, Farnham, England, Commonwealth Agr. Bur., 1958) reports the only other known case of turdid hybridism to have been between an apparently captive male Western Bluebird (*S. mexicana*) and a female *S. sialis*.

When I first saw the hybrid on 26 May he was mated to a female *S. currucoides*, which was incubating a clutch of seven eggs. He was aggressive in defense of the nest and shared in the feeding of the young and in keeping the nest clean. Six eggs hatched on 1 June, and on 17 June Dr. Nero took the six young to Winnipeg, cared for them, and then sent them to David C. Krieg in New York for further study.

On 29 May I saw the hybrid copulate with a female *S. sialis* at a nearby nest box. This female started incubating five eggs on 2 June and incubated them for 16 days before abandoning the nest. All the eggs proved infertile. She immediately mated with a normal Eastern male and raised a brood of five in a nearby nest. Thus the hybrid apparently was able to fertilize eggs of *S. currucoides* but not of *S. sialis*.—JOHN LANE, 1701 Lorne Avenue, Brandon, Manitoba, Canada.

Lack of association among duck broodmates during migration and wintering.—Male (Lensink, 1964: 19) and female ducks tend to return to the area where they last bred or were raised (Sowles, 1955). Band recovery data show a similar tendency for ducks to return to wintering areas (Stewart *et al.*, 1958; Martinson, 1966). Wintering British Columbia Mallard (*Anas platyrhynchos*) populations may

TABLE 1
RECOVERY DETAILS OF DUCKS BELIEVED TO BE MEMBERS OF THE SAME BROOD WHEN Banded

Species	Banding location and date	Sex	Recovery information		Date of recovery
			Location of recovery	Recovery information	
Mallard	Success, Saskatchewan 27 July 1955	Male	Southwestern Saskatchewan (Eston)		3 October 1955
		Male	Southwestern Idaho (Emmett)		20 November 1955
Gadwall	Abound, Saskatchewan 4 August 1958	Male	Northwestern Arkansas (Walnut Ridge)		20 December 1955
		Female	Southwestern Illinois (Alton)		15 November 1958
Canvasback	Waldock, Saskatchewan 4 July 1958	Female	Eastern Virginia (Montross)		December 1958
		Female	Southeastern Michigan (Lake St. Clair)		11 November 1958
Canvasback	Oak River, Manitoba 14 July 1953	Male	Central California (San Pablo Bay)		12 December 1958
		Male	Southeastern Michigan (Detroit River)		6 March 1960
Canvasback	Sandy Lake, Manitoba 10 July 1953	Female	Southwestern Manitoba (Sandy Lake)		28 September 1953
		Male	Eastern Michigan (Saginaw Bay)		26 October 1953
Canvasback	Sandy Lake, Manitoba 16 July 1953	Female	North-central North Dakota (Anamoose)		29 October 1953
		Male	Southeastern Wisconsin (Fox Lake)		1 November 1953
Canvasback	Minnedosa, Manitoba 24 July 1953	Male	Southwestern Minnesota (Yellow Medicine Co.)		15 November 1953
		Female	Chesapeake Bay, Maryland (St. Marys Co.)		7 January 1954
Mallard	Lucky Lake, Saskatchewan 10 July 1957	Female	Southwestern Manitoba (Amaranth)		21 September 1953
		Female	Eastern South Dakota (Kingsbury Co.)		4 October 1953
Mallard	Abound, Saskatchewan 3 August 1960	Female	East-central Wisconsin (Lake Poygan)		8 November 1953
		Male	Southwestern Michigan (Lake St. Clair)		7 November 1953
Mallard	Bradwell, Saskatchewan 27 July 1958	Male	Northwestern Wyoming (Powell)		11 March 1964
		Male	Southeastern Nebraska (Beatrice)		23 November 1957
Mallard	Abound, Saskatchewan 3 August 1960	Male	Southeastern Arkansas (Stuttgart)		31 December 1960
		Female	North-central Texas (Seymour)		"Hunting season," 1962
Mallard	Minnedosa, Manitoba 9 July 1952	Female	Central Saskatchewan (Bradwell)		6 September 1958
		Adult Female	Northwestern Nebraska (Verdel)		27 November 1958
Mallard	Abound, Saskatchewan 27 July 1958	Male	Southwestern British Columbia (Vancouver)		8 December 1962
		Female	Southeastern Saskatchewan (Moosomin)		20 October 1952
Mallard	Minnedosa, Manitoba 9 July 1952	Adult Female	Southeastern Arkansas (Stuttgart)		12 December 1952
		Male	Northeastern Texas (Dallas)		23 November 1953

be definite associations of birds that breed in the same general locality, migrate together, and use the same wintering area (Munro, 1943). On the other hand Gollop (1965: 36-37) showed that Mallards reared in Saskatchewan or breeding there returned in subsequent years, but "neither migrated nor wintered as definite associations." He based his conclusions on recovery data from groups of Mallards banded on the same slough and from broodmates. His data showed, by date or area of recovery, that the birds migrated independently and sometimes to different wintering localities. This paper presents additional data suggesting that ducks banded as broodmates may migrate independently.

We obtained records from banders and from the banding schedule files at the Bird Banding Laboratory, Laurel, Maryland, for several hundred groups of flightless ducklings that were identified as broodmates when banded. All were released at or near the point of capture but not necessarily in a group. Of the 31 broods yielding recoveries of two or more broodmates, 21 were recovered at places or dates of no significance to the problem. Table 1 shows the recovery details for the remaining 10 broods, in which the recoveries of broodmates on different migration and wintering areas or in different migration or wintering periods suggest they had not migrated together. The first three broods yielded recoveries in different migration or wintering areas during the same migrational or wintering period: Mallards in Idaho and Arkansas, Gadwalls (*Anas strepera*) in southwestern Illinois and eastern Virginia, and Canvasbacks (*Aythya valisineria*) in southeastern Michigan and California. Recoveries from the other three broods of Canvasbacks also suggest separate migration by both date and location. The recoveries from the last four broods of Mallards in different migrational or wintering areas but in different years are equally suggestive because of the tendency of ducks to return to the same wintering area they first visit.

If, as these data indicate, ducklings do not travel together as a family unit, and therefore not with the parent hen, it can be speculated that homing to the natal area (Sowles, 1955; Lensink, 1964: 19) is not accomplished by the leadership of the parent. It might also be concluded that, although a wintering area tradition is established after the first migration, wintering populations of ducks are interrelated through the mingling of their progeny.

LITERATURE CITED

- GOLLOP, J. B. 1965. Dispersal and annual survival of the mallard (*Anas platyrhynchos*). Canadian Wildlife Service (mimeo.).
- LENSINK, C. J. 1964. Distribution of recoveries from banding of ducklings. U. S. Fish and Wildlife Service, Special Sci. Rept., Wildlife no. 89.
- MARTINSON, R. K. 1966. Some characteristics of wintering mallard populations and their management. Migratory Bird Populations Station, Laurel, Maryland, Administrative Rept. no. 116.
- MUNRO, J. A. 1943. Studies of waterfowl in British Columbia mallard. Canadian J. Research D, 21: 223-260.
- SOWLES, L. K. 1955. Prairie Ducks. Harrisburg, Pennsylvania, Stackpole.
- STEWART, R. E., A. D. GEIS, AND C. D. EVANS. 1958. Distribution of populations and hunting kill of the canvasback. J. Wildl. Mgmt., 22: 333-370.

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